**Optics Quiz Review**

Use your textbook (Chapter 10) and your class notes.

1. Complete the following table:

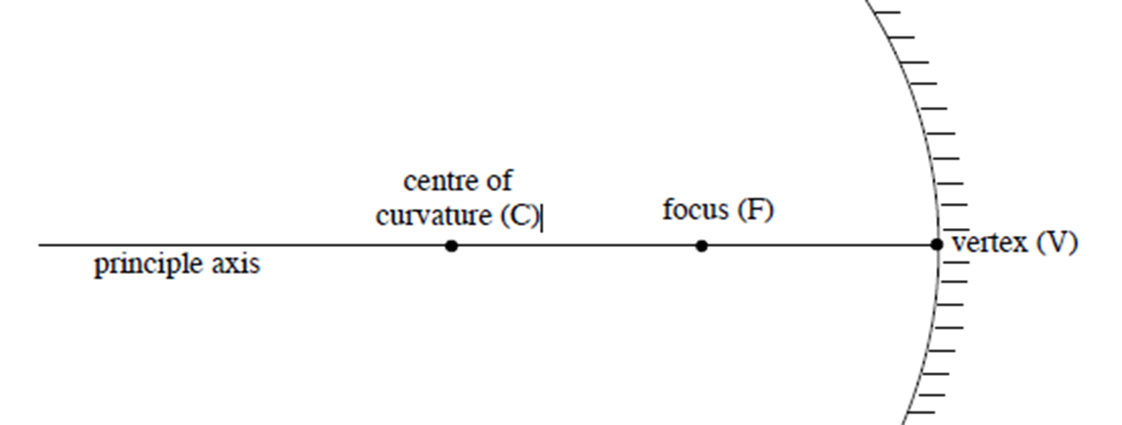
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| Light Source | Description | Examples |
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1. Order the following electromagnetic waves from lowest energy to highest energy: radio, visible, ultraviolet, infrared, x-rays, microwaves, gamma rays.
   1. Which of these has the longest wavelength?
   2. Which of these has the shortest wavelength?
   3. What can you infer about wavelength and energy?
2. What is the difference between incandescence and luminescence?
3. What are the Laws of Reflection?
4. What is the difference between a real image and a virtual image?
5. Complete the following plane mirror ray diagrams:

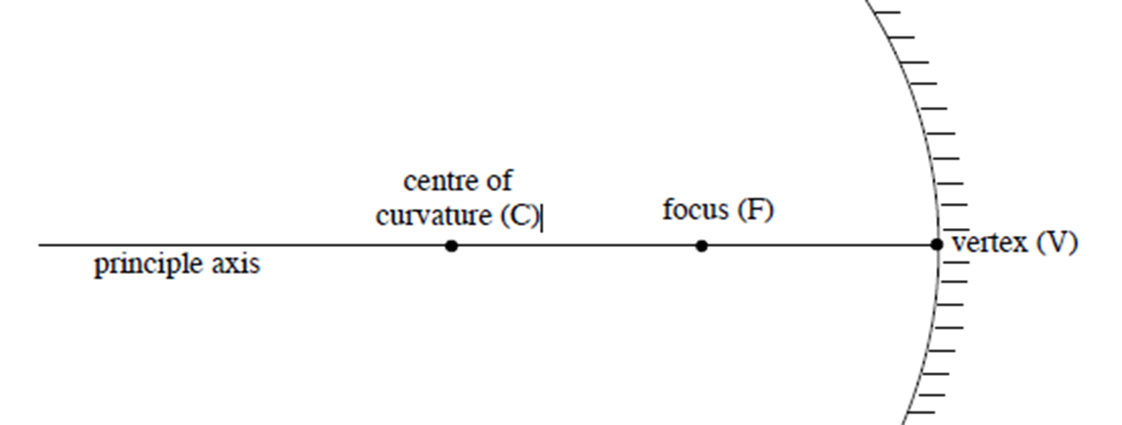




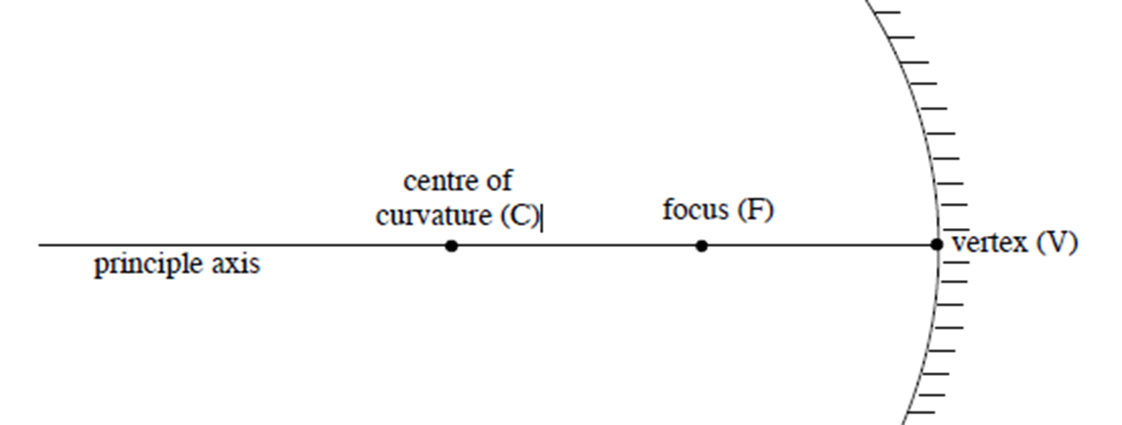
1. Mr. Nguyen has not shaved in weeks. What mirror (plane, concave, or convex) should he use when shaving to avoid cutting himself? Why?
2. While trying to shave, Mr. Nguyen backs away from his mirror and notices that his reflection has disappeared! He believes he has become a vampire. Using a ray diagram, convince him that he has disappeared because of the magic of physics and not because he is a vampire. Mr. Nguyen will only be convinced if you include an explanation with your diagram.



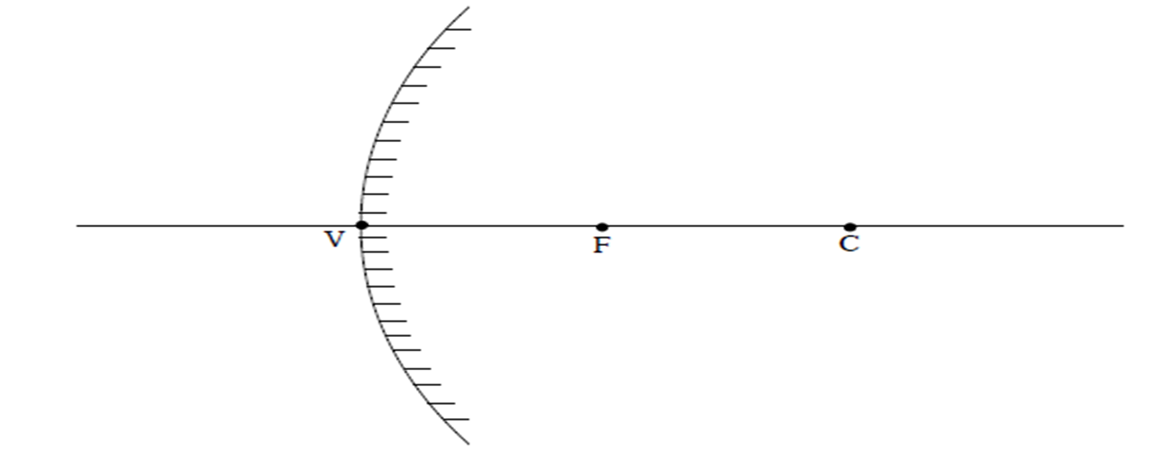
1. Complete the following ray diagram for an object placed between point C and F (include LOST):



1. Complete the following ray diagram for an object placed between point F and V (include LOST):



1. Complete the following ray diagram for an object placed in front of this convex mirror (include LOST):



1. Compare the characteristics of a plane mirror and convex mirror using LOST.
2. A candle is placed 50 cm from a concave mirror with a focal length of 20 cm.
3. How far is the image from the mirror?
4. Which side of the mirror is the image on? How do you know?
5. Is the image inverted or upright?
6. If the object is 8mm tall, how tall is the image?
7. A concave mirror produces a real, inverted image of an object. The image is half the size of the object. If the object is 40 cm from the mirror, what is its focal length?
8. Concave mirrors can be used as for shaving or applying make up. The face must be inside the focus. You hold a concave mirror, with a focal length of 40 cm, about 30 cm from your face.
9. Where is your image located?
10. How much bigger than your face is the image (in cm)?
11. Determine the focal length of a convex mirror that produces an image that is 16.0 cm behind the mirror when the object is 28.5 cm from the mirror.
12. A 2.80-cm diameter coin is placed a distance of 25.0 cm from a convex mirror that has a focal length of -12.0 cm. Determine the image distance and the diameter of the image.
13. A focal point is located 20.0 cm from a convex mirror. An object is placed 12 cm from the mirror. Determine the image distance.